Agricultural Economic Report No.89

An Analysis of

WOOL
MARKET NEWS
AND ITS
IMPORTANCE
TO MARKETING
EFFICIENCY

U.S. DEPARTMENT OF AGRICULTURE - ECONOMIC RESEARCH SERVICE

ACKNOWLEDGMENTS

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SUMMARY AND CONCLUSIONS

The dissemination of current and reliable market information to all segments of the marketing system is essential if that system is to operate competitively and efficiently. To keep abreast of the increasing complexities of wool market reporting brought about by changes in the marketing system, the Consumer and Marketing Service (C&MS) proposed a joint research project with the Economic Research Service. Available wool marketing information did not appear to fully meet the needs of producers and local buyers for making decisions. C&MS particularly wanted to know whether their livestock news reporters, who were already in the wool producing areas, could also serve as wool reporters.

Actual sales of wool during 1960-64 from 9 local market areas were analyzed for price and quality relations with the USDA weekly Boston quotations. These sales amounted to more than 47 million grease pounds. Results indicated that, on the average, only 46 percent of variations in USDA Boston quotations were accounted for by similar variations in local market prices. When local price was combined with fineness and an interaction term (fineness and staple length), 75 percent of variations in Boston quotations were explained. Fiber fineness was related to quoted prices more than any other single property, explaining approximately 53 percent of their variation.

Of the 530 lots of wool reported sold in local market areas and adjusted for transportation to Boston equivalent prices, 269 lots were priced above the corresponding Boston quotations, with a difference in value of $900,000, and 255 lots were below the Boston quotations, with a difference in value of $400,000. On the whole, adjusted local prices were higher in 6 of the 9 markets than the Boston quotations.

Statistically significant differences existed between the level of Boston quotations and prices paid in the Clovis, N. Mex., Fort Worth and San Antonio, Tex., and West Fargo, N. Dak., market areas. Differences ranged from an average of 6 cents below Boston quotations in the West Fargo area to 10½ cents above in the Clovis area. These 4 markets accounted for 60 percent of the total difference below ($400,000) and 81 percent of the difference above ($900,000) Boston quotations.

These differences between adjusted local prices and Boston quotations seemed to have arisen from two sources: (1) A lag in the Boston quotations, and (2) the inability of the present price reporting category, "original-bag territory," to reflect prices for substantially different wools that are reported within that category. Differences in size of lot apparently had no significant relation to spot quotations.

These findings indicated two changes were needed in the development of market news. First, the price-quality information needed to be related more specifically to particular areas. Second, the Boston report needed to increase the number and types of news sources to relate quoted prices more closely to local spot prices. To meet these needs, the following recommendations were made:

1. For a comprehensive coverage of U.S. wool markets, continue the local reporting of spot prices from 6 markets analyzed in this study--Portland, Oreg.,

Ogden, Utah, Billings, Mont., Denver, Colo., Clovis, N. Mex., and West Fargo, N. Dak.--and establish offices in Minneapolis, Minn., Kansas City, Mo., Stockton, Calif., and San Angelo, Tex.

2. Since New Mexico and western South Dakota wools differ substantially from most of the wools reported with them, they should have a separate price reporting category.

3. Efforts should be made to increase the circulation of the USDA Weekly Review of the Boston Wool Market.

AN ANALYSIS OF WOOL MARKET NEWS AND
ITS IMPORTANCE TO MARKETING EFFICIENCY

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INTRODUCTION

Wide distribution of accurate and timely market information is needed for
any competitive marketing system to function efficiently. Market news is
especially designed to provide current and factual information to all segments
of an industry (1). 1/ The more current and factual this information, the more
competitive the industry can be in its marketing operations. Thus, the ultimate
consumer benefits from increased marketing efficiency through competitive prices
he pays for purchased goods. At the same time, producers having adequate market
news are able to obtain the true market value of the goods they sell.

Aware of the continuing need for adequate market information, and faced
with rapid changes in location and structure of the wool industry, the market
news staff of the Department of Agriculture continually seeks new sources of
data to improve the wool market reporting service. Until about 1950, the domes-
tic wool clip was marketed primarily through textile mill offices and wool
dealers located in Boston, Mass. The raw wool was handled and prices were estab-
lished in Boston. Under these market conditions, the Department's reporter in
Boston could accurately report the domestic wool market with relative ease. But
the wool marketing system has changed since then.

Today, mills buy wool directly from growers and warehouses in the producing
areas and ship the wool directly to their mills. As a result, the volume of
wool handled in the Boston market has steadily declined. It has become corre-
spondingly difficult to obtain adequate market information in Boston which re-
flects the large volume of transactions in the producing areas. Thus, the
Consumer and Marketing Service (C&MS), whose responsibility is to report wool
prices, proposed a joint research program with the Economic Research Service
(ERS) to evaluate alternative means of broadening the base of the wool market
news reporting system.

Purpose of Study

This study was designed to (1) determine the sources, availability, and
accuracy of additional spot market information needed to assist producers and

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1/ Underscored numbers in parentheses refer to items cited in Bibliography,
p. 15.

local buyers in making sound market decisions; (2) determine the relationship between Boston quotations and local spot prices; and (3) determine the source of variation between these prices in market location and quality.

METHODOLOGY AND SCOPE

The first step in this study was to review available sources of wool price information to determine how well they met the needs of producers, marketing agencies, and buyers. This market information is usually obtained from warehouse operators, cooperative agents, specially trained livestock reporters, or commercial analysis of wool samples. We assumed that the value of reporting grease wool prices without relating them to yield, grade, staple length, and other significant price factors would be questionable, except in those areas where producers tend to sell their wool on a one-price basis, regardless of quality.

The second step was to make a preliminary survey of these sources to ascertain the kinds, amounts, and availability of information on supplies, qualities, prices, and movement of wool. Results of this survey were then used to determine the best source or combination of sources for each kind of information needed for market news reports, the adequacy of the information, and feasible means of assembling and interpreting it.

Subsequently, we decided that specially trained C&MS livestock reporters working directly with only 25 to 30 wool warehouse operators could obtain price and quality data on nearly 60 million pounds of shorn grease wool annually. These data would provide market news reports with a much broader base and a greatly increased sensitivity to market changes in the supply and demand for specific grades.

A trial period of at least 1 year would be necessary to provide some basis for answers to the following pertinent questions: (1) To what extent will buyers of wool object to marketing agencies making sales data available? (2) To what extent will the marketing agencies follow up on their verbal agreement of cooperation? (3) What is the most feasible means of collecting and assembling the information to be made available? (4) How accurate will the information be that the marketing agencies furnish?

Data included in this study were supplied by the New Mexico State Agricultural Experiment Station, the Denver Wool Laboratory of the C&MS Livestock Division and specially trained livestock reporters of C&MS from 8 market news offices covering 11 Western States, North Central States and Texas (fig. 1). 2/ In addition to the information supplied by the 8 local market news offices, sales information of the C&MS wool market news office in Boston was included.

2/ An additional 5 market news reporters cooperated in the study but because the data in their reports were incomplete, these reports are omitted from the analysis.

LOCATION OF MARKETS STUDIED

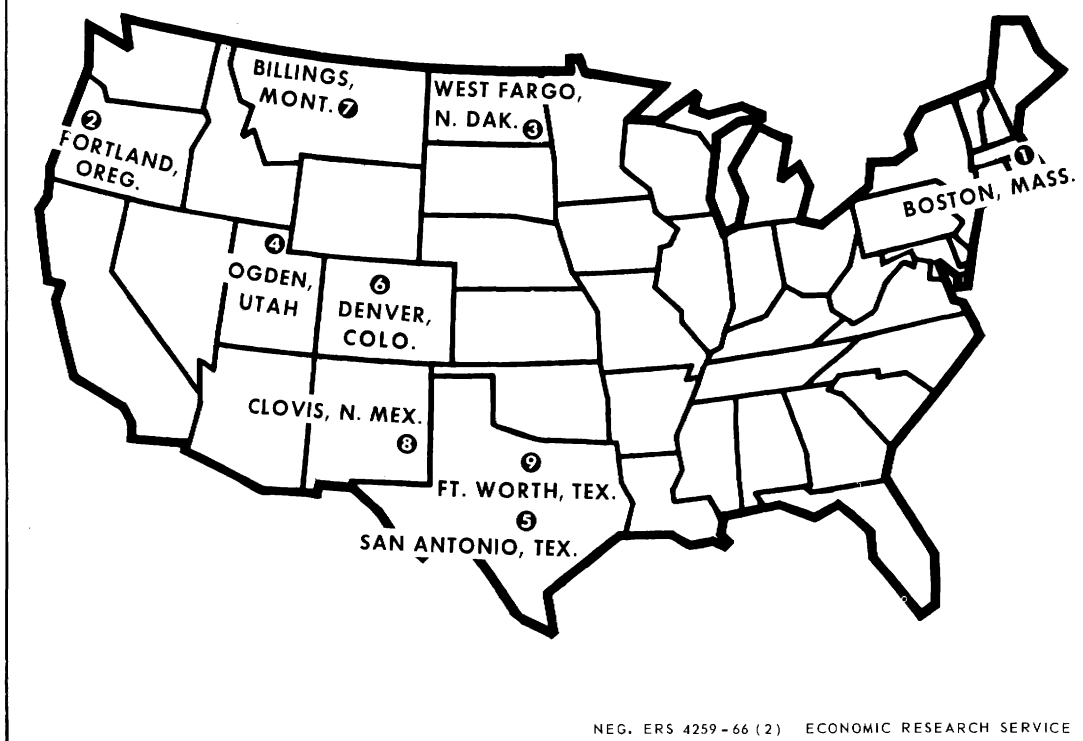NEG. ERS 4259-66 (2)   ECONOMIC RESEARCH SERVICE

Figure 1,

The reporters attended short courses in wool conducted by the Denver Wool Laboratory (C&MS) late in April 1962, and again in February 1963. These courses were designed to acquaint them with the type of data required for the study and to familiarize them with wool qualities and trading procedures. 3/

Livestock reporters get most of their information from warehouse operators who appraise the wool visually. They also get some from local buyers and producers. In this study, the reporters were instructed to obtain information on yield, fineness, staple length, lot weight, grease price or clean price, and date and terms of sale. Not all the information received was complete, and some estimates were made. In all, 530 lots of wool were studied--397 in producing areas and 133 in Boston. This represented more than 47 million pounds of wool reported sold from November 1960 to May 1964. Most of the sales occurred during 1963-64.

Adjustments were made in the data from livestock reporters as follows:

    (1) For prices of combined lots reported as a narrow range, a
        weighted average price was computed.
    (2) For lots composed of more than one grade, the bulk grade (75 per-
        cent or more) was used.
    (3) If no grade was predominant in a mixed-quality lot, the lowest
        indicated grade was used.

3/ Thomas J. Ferrell, C&MS (Denver), was coordinator of this project.

To facilitate comparisons, all local prices were adjusted to equivalent Boston quoted prices, clean basis, delivered. Adjustments for differences in location were based on appropriate transportation rates reported by Interstate Commerce Commission (ICC) as indicated by the specified size of lot of wool sold.

PRICE DIFFERENTIALS AT BOSTON FOR GRADE AND STAPLE LENGTHS

Boston quoted prices for the various grades and staple lengths of apparel wool tend to rise and fall together but in varying degrees as illustrated by the price differentials in figure 2. Changes in price are usually not proportional for all grades and staples because of disproportionate changes in the supply of and demand for the various grades and staple lengths (4). During March 1960 quoted price spreads between 46's-48's and the finer grades were 25 cents for 64's and finer, 20½ cents for 60's-62's, 15 cents for 56's-58's, and 9 cents for 50's-54's. Later the spreads declined to 5 cents for 64's and finer, and zero for the other grades. By April 1961 they had increased again to the former spreads of 25 through 9 cents (fig. 2).

Much of the variation in price spreads can be attributed to changes in fashions and seasons (8), as well as other factors such as advanced purchases by mills and contract buying in the producing areas (7). Millmen are constantly

Price Differentials For Fineness Derived From Boston Quotations For Graded Territory Wools, Good French Combing & Staple, 1960-63
(Base = Low-Quarter Blood)

SOURCE: USDA WEEKLY REVIEW OF THE BOSTON WOOL MARKET.
PRICES ARE QUOTED ON THE BASIS OF CLEAN CONTENT, DELIVERED BOSTON.

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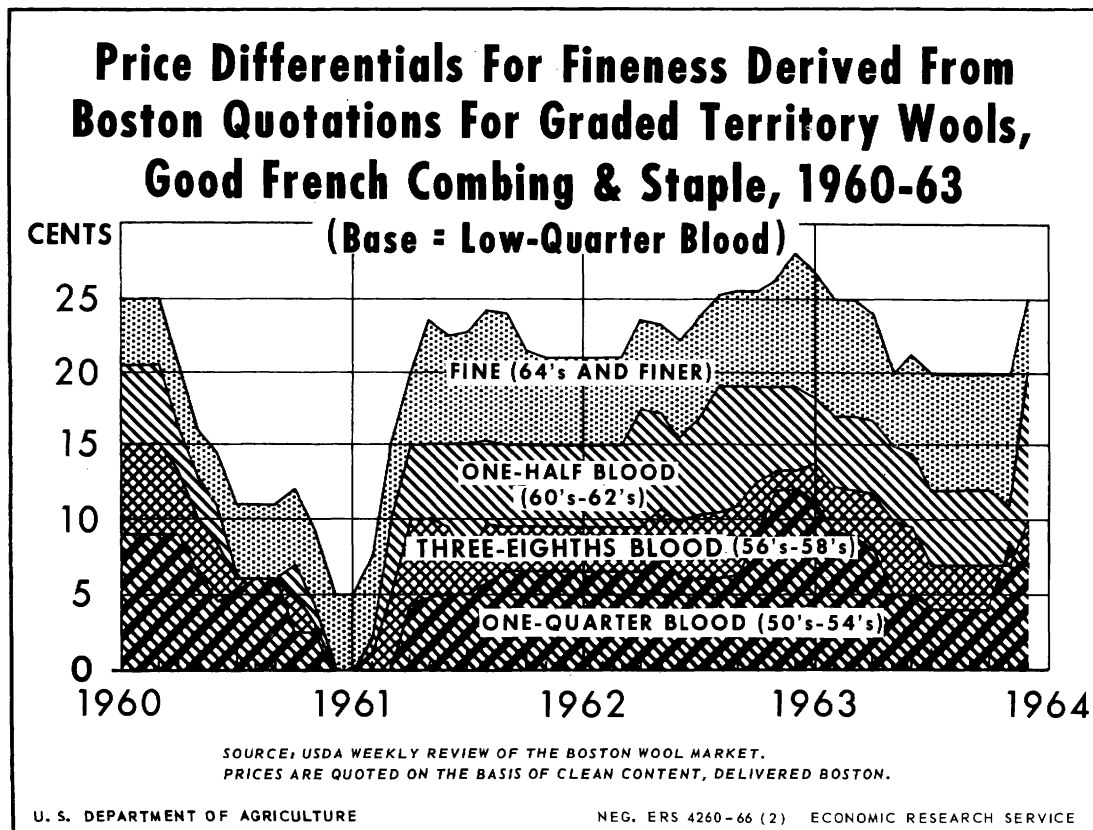
Figure 2

evaluating current and prospective demands for wool products, they attempt to equate these demands with current and prospective supplies of the various quality wools (5). As the practice of contract and direct buying increases, local markets become more important for setting wool prices. Thus, the need for accurate market information from these areas also increases if central market price quotations are to be reliable.

RELATIONSHIP OF LOCAL PRICE AND
QUALITY FACTORS TO BOSTON QUOTED PRICE

Local Price

Simple correlation of adjusted local market prices with corresponding Boston quoted prices yielded an r value of 0.675 (table 1). 4/ This means that for wool of the quality reported sold in all the local markets, only 46 percent (r^2) of the variation in Boston prices was accounted for or explained by variations in local market prices. In a similar study (6), adjusted prices for 329 lots of wool sampled at warehouses in Texas during 1957-59 and 115 lots sampled at warehouses in North Central and Western States during 1958-59 were related to Boston quoted prices for wool of similar grades and staple lengths. Correlation coefficients were 0.85 and 0.81, respectively. Though these coefficients indicate a significantly better relationship of Boston quoted prices to local prices than the relationship observed in this study, two important features stand out. First, variations in fineness and staple length of the 444 lots of wool were relatively small, resulting in the bulk of prices being bunched in a narrow range. Second, each lot of wool was measured for quality factors under laboratory conditions, and the results were made known to the producer. This tended to reduce local price variations which might normally be attributed to the comparative bargaining advantage of buyers, who usually are better able to evaluate the commercial value of a lot of wool than are producers. Even under these conditions according to the study, differences between local prices and Boston quoted prices for wool of similar grade and staple length amounted to 5 cents or more a clean pound for about 63 percent of the lots from Texas and about 33 percent of the lots from the other States.

Price differences in the study reported here are also significant. Of 530 lots of wool sold, 269 brought prices above the comparable Boston quoted price, 255 below, and 6 the same (table 2). On a weighted basis, the 269 lots were valued at about $900,000 above the Boston market and the 255 lots about $400,000 below, for a net difference of about $500,000 above the Boston market. In other words, on the basis of a weighted average, the 47 million pounds of wool (assuming an average shrink of 50 percent) were valued about 2 cents a clean pound more in local markets (adjusted for transportation) than the Boston quotations indicated. Most of this difference is accounted for by wool reported sold in the Clovis, N. Mex., and Fort Worth, Tex., market areas. Of the $900,000 paid in local markets over comparable Boston quoted prices, 56 percent was attributed to wool sold in New Mexico and West Texas, while less than 9 percent of the $400,000 paid in local markets below Boston quoted prices was due to wool sold in these two markets. These results indicated a significant difference between price levels for the Boston quotation and the Clovis and Fort Worth market areas.

4/ A perfect association would yield a correlation coefficient (r value) of 1.0.

Table 1.--Simple correlation of variables with Boston quoted prices, variation explained by regression, and related data, 1960-64

Variable	r	r^2	Mean value	Standard deviation
Adjusted local prices..	0.675**	0.456	1.24 (dollars)	0.12
Average fiber fineness.	-.729**	.531	22.76 (microns)	2.84
Average staple length..	.017*	--	2.62 (inches)	.51
Interaction 1/.........	-.347**	.120	60.36 (microns x inches)	17.55
Size of lot............	.052	.003	89,720 (pounds)	205,638.00
Midpoint Boston quoted price...............	--	--	1.23 (dollars)	.08

1/ Average fiber fineness times average staple length.

* Significantly different from zero at the 95 percent probability level.
** Significantly different from zero at the 99 percent probability level.

Table 2.--Differences between local and Boston quoted prices for 530 lots of and their weighted value, clean basis, by specified market, 1960-64

Market	Differences in prices 1/			Total lots	Value		
	Above	Below	Same		Above	Below	Difference
	- - - - Number - - - -				- - 1,000 dollars - -		
Boston, Mass.	65	65	3	133	204.5	11.2	93.3
Portland, Oreg.	3	5	--	8	6.1	4.4	1.7
West Fargo, N. Dak.	5	6	--	11	28.9	41.9	-13.0
Ogden, Utah.............	6	1	--	7	5.6	1.4	4.2
San Antonio, Tex.	13	38	3	54	12.4	77.6	-65.2
Denver, Colo.	7	19	--	26	43.8	27.4	16.4
Billings, Mont.	62	91	--	153	55.5	108.3	-52.8
Clovis, N. Mex.	60	15	--	75	294.4	22.2	272.2
Ft. Worth, Tex.	48	15	--	63	242.5	11.7	230.8
Total.............	269	255	6	530	889.0	401.5	487.5

1/ Differences are measured as the local price being either above or below the comparative Boston quoted price.

The average local market price paid for all wool reported sold was $1.24 per pound. This corresponded to an average Boston quoted price of $1.23. Though the two average prices differed only slightly, variation from the average by local prices was greater than the variation by Boston quoted prices. This is indicated by the 4-cent difference in standard deviation for the two prices, and represents a difference of more than 33 percent (table 1). The significance of this difference can be seen more clearly by comparing the ranges in price, for quotations and for local markets, that are necessary before 68 and 95 percent of the data will be included (figs. 3 and 4). For instance, a price range of $1.15-$1.31 (the average quoted price minus and plus one standard deviation) is necessary to include 68 percent of the quotation prices. A range of $1.12-$1.36 (the average local price minus and plus one standard deviation) is necessary to include 68 percent of the local prices reported.

Another measure of the relative variation in prices of local markets and the Botston quotations is the coefficient of variation (CV). The CV for local prices was approximately 3 percent greater than that for Boston quotations, indicating more variation in local prices than was indicated by the Boston report. The usual interpretation given for this difference would be that central market prices tend to fluctuate less dramatically than do local market prices over short periods of time. This is generally true to the extent that central market prices reflect an average of all local prices for specific qualities of wool. To reflect the average price though, the central market must be either a location where a large quantity of wool is physically traded or where information on such transactions is available. The Boston market more nearly corresponds to the latter.

But the limited extent to which price information is available in Boston explains, in part, differences in variation of prices paid in the local markets and those quoted in Boston. Additional factors which may contribute to these differences are: (1) prices unadjusted for differences in shipping costs, preparatory costs, and terms of sale; (2) inaccurate price and quality information, and (3) importance of quality factors other than fineness, staple length, and yield.

Average prices reported by local market reporters for all wool ranged from $1.16 per pound in Colorado to nearly $1.40 per pound in eastern New Mexico (table 3). Whereas the difference in average price paid in all local markets and the average Boston quoted price was 1 cent, differences on an individual market area basis ranged from 6 cents below the average Boston quoted price in West Fargo, N. Dak., to nearly 11 cents above in Clovis, N. Mex. Not all differences in average prices were significant, however, but for the four that were, these differences reflected different price levels between local markets and the Boston quotations (fig. 5). Again it should be mentioned that other factors not accounted for may, in part, have accounted for these differences.

Grade

Differences in average fiber fineness (grade) of wool lots sold in local market areas explained about 53 percent of the difference in Boston quoted prices. These same differences in fineness explained less than 26 percent of

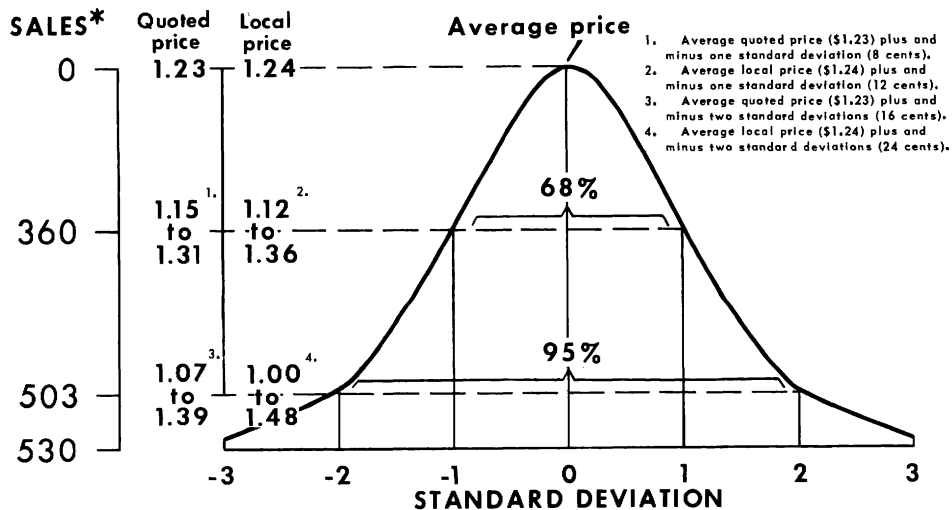## DISPERSION OF REPORTED OR QUOTED PRICES ABOUT THEIR RESPECTIVE MEANS, AS MEASURED BY STANDARD DEVIATIONS
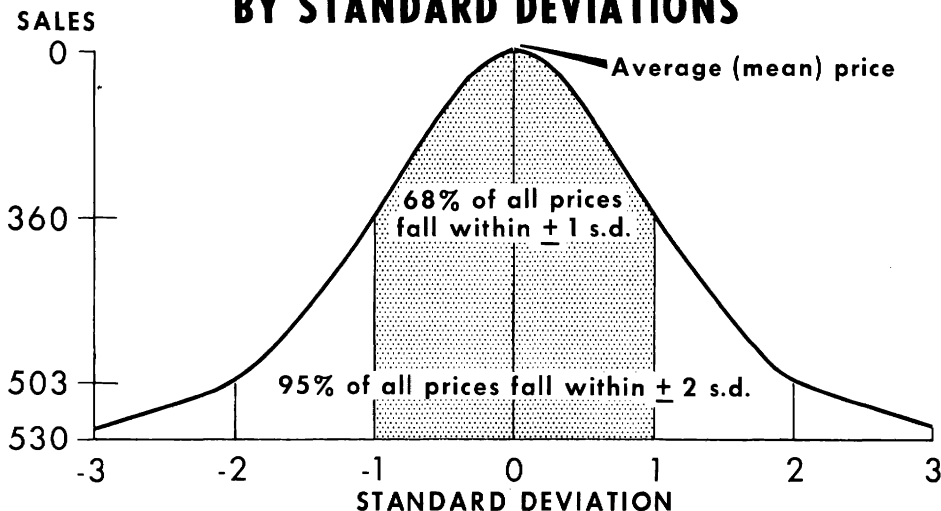
Figure 3

RANGE OF QUOTED AND LOCAL PRICES MEASURED BY STANDARD DEVIATION

Figure 4

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Table 3.--Average local and central market prices, for 9 wool markets, 1960-64

| Market | Sales | Market prices | | |
		Local	Boston quoted	Difference
	Number	Dollars	Dollars	Cents
Clovis, N. Mex. ....:	75	1.397	1.292	0.105**
Ft. Worth, Tex. ....:	63	1.322	1.274	.048**
Ogden, Utah...............:	7	1.244	1.227	.017
Boston, Mass. ....:	133	1.204	1.190	.014
Portland, Oreg. ....:	8	1.230	1.219	.011
Billings, Mont. ....:	153	1.205	1.218	-.013
Denver, Colo. ....:	26	1.161	1.179	-.018
San Antonio, Tex. ....:	54	1.215	1.258	-.043**
W. Fargo, N. Dak. ....:	11	1.176	1.236	-.060**
Total..............:	530	1.240	1.230	.010

**Significantly different from zero at the 99 percent probability level.

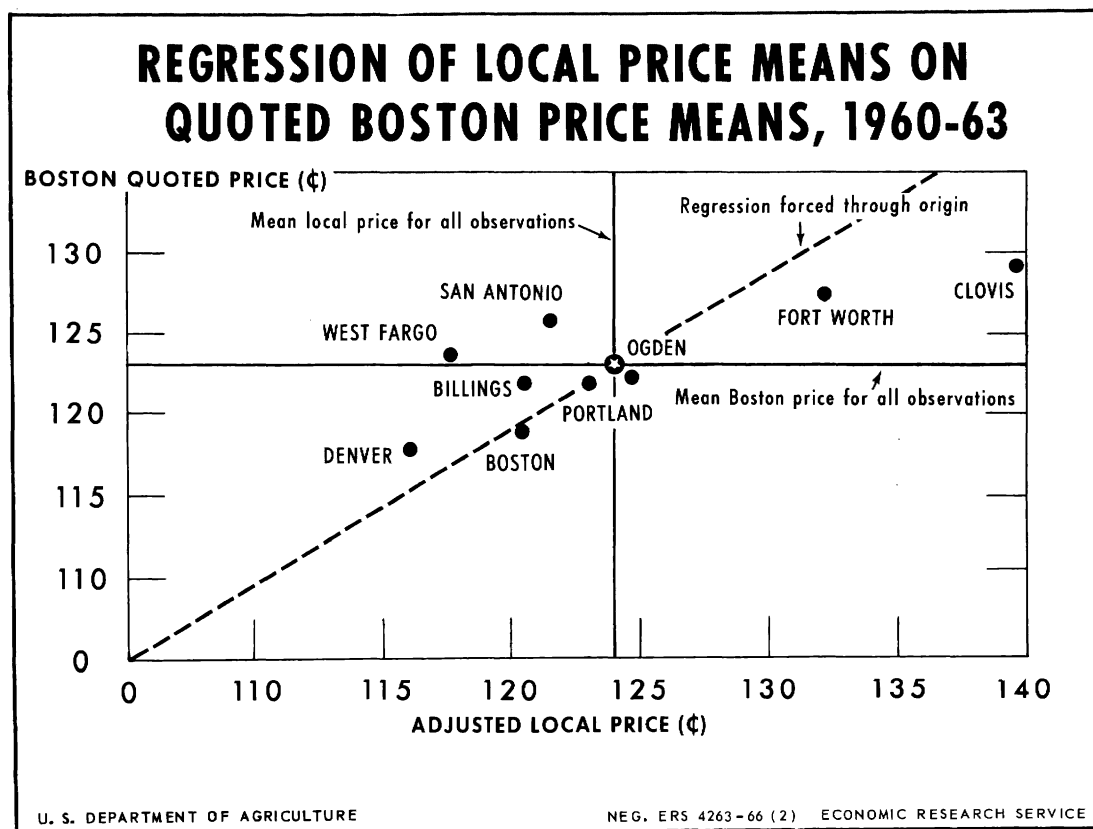REGRESSION OF LOCAL PRICE MEANS ON QUOTED BOSTON PRICE MEANS, 1960-63

Figure 5

the differences in local prices, indicating that prices paid for wool in local markets were not based on fiber fineness to the same extent as were the Boston quotations. In other words, the correlation coefficient for fineness and local prices was only -0.505, but for fineness and Boston quoted prices it was -0.729. This low relationship between local price and fiber fineness may indicate the "one-price buying" that seems to occur in some areas. On the other hand, during the period this wool was marketed, fashions in clothing tended to place a great deal of emphasis on wool grades indicating that prices for wool may have varied in terms of fiber fineness. Then, too, the Boston quotations classify wool within areas primarily on the basis of fiber fineness. These grades are more narrowly defined than are the various staple lengths within each grade, and, consequently, variations in price tend to be more pronounced for grades than for staple lengths (figs. 6-9). For instance, price differentials for the 3 staple lengths of fine-graded Territory wool remained unchanged in the Boston quotations from January to early April, from middle April to early May, and from early July through December of 1960, during which time approximately 64 percent of the year's wool was marketed. No change in price differential for staple length was reported during 1960 for one-half blood and graded Territory wool; changes were reported for three-eights blood only during 3 different weeks of that year.

During this same period, price differentials for fineness in the graded Territory wools were definitely dynamic (fig. 2). These divergent conditions of grade and staple length price differentials may be explained by price movements reported in the Boston quotations. More often than not these sales were for wool of 1 grade and 1 staple length. Though prices of the other classes of staple length within the reported grade remained nominal, they nevertheless changed along with the price of the of the reported staple length. The result of this type of price movement was that price differentials for staple lengths within grades tended to be constant while differentials for grades tended to change. This was especially true during those periods when reported grade prices were changing and most quoted prices were nominal. This was generally true for the quotations during 1960-64.

During periods when less emphasis is placed on fiber fineness and more on other quality factors, such as staple length, and quotations for all classes of staple length are based on actual sales, a different relationship from the one described above might be expected.

Staple Length

During this study, staple length varied about 20 percent from the average length of 2.6 inches for 66 percent of the wool reported sold but accounted for less than 1 percent of variation in Boston quoted and local prices. In addition to the relatively small variation in staple length, market conditions did not generally place larger premiums on length of wool within certain ranges, except for "specialty" wools from New Mexico and South Dakota. As mentioned before, one would expect a different relationship for staple length and Boston quoted prices during periods in which sharp premiums and discounts are evident for various staple lengths. Apparently buyers evaluate staple length more in combination with fiber fineness than for length alone. This is evidenced by the greater amount of variation of Boston quoted price explained by the interaction term than by staple length alone (table 1).
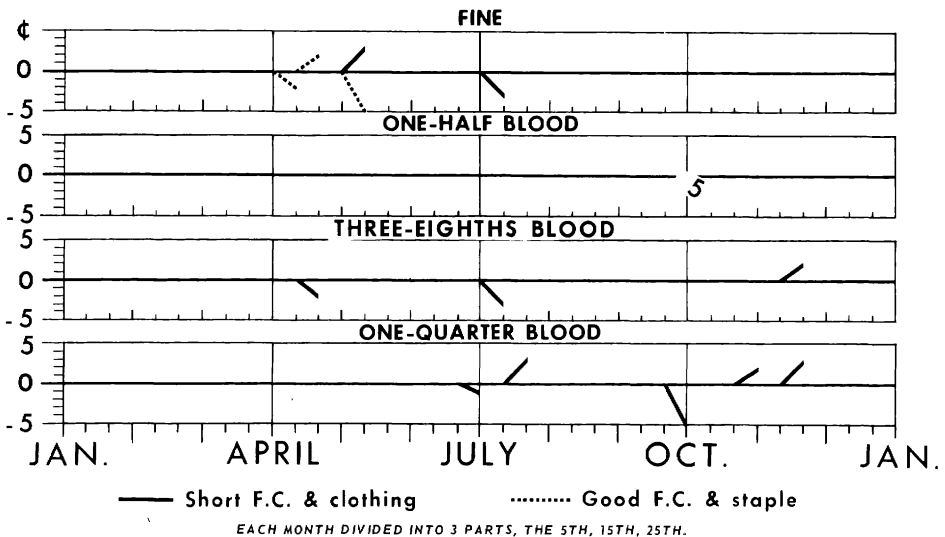
Figure 6

Figure 7

1962 CHANGES IN PRICE DIFFERENTIALS

The Boston Quoted Price
for Graded Territory Wool

FINE

ONE-HALF BLOOD

THREE-EIGHTHS BLOOD

ONE-QUARTER BLOOD

JAN.　　APRIL　　JULY　　OCT.　　JAN.

—— Short F.C. & clothing　　·········· Good F.C. & staple

EACH MONTH DIVIDED INTO 3 PARTS, THE 5TH, 15TH, 25TH.
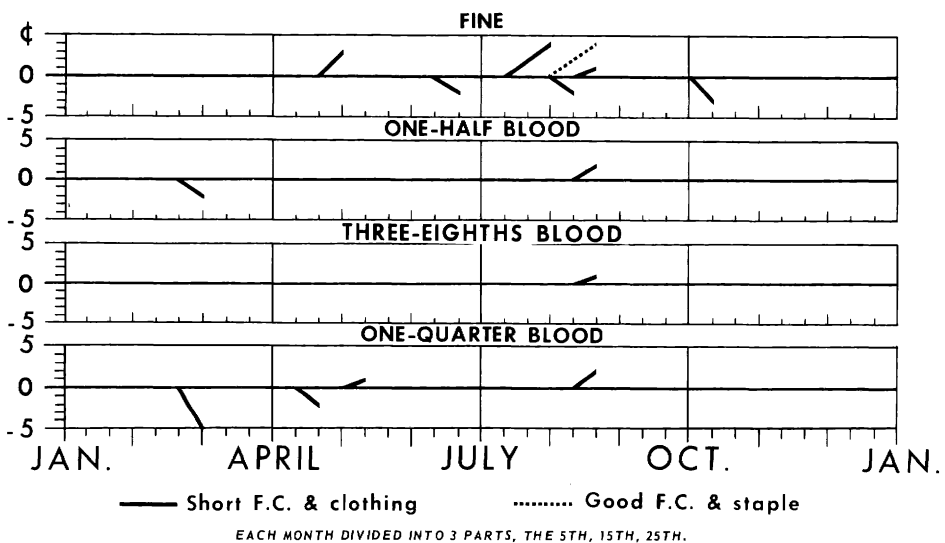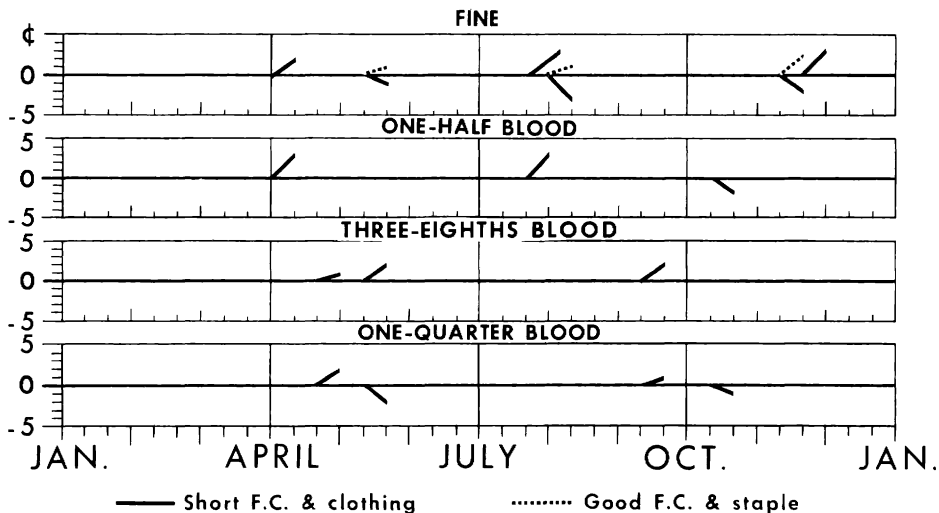
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Figure 8

1963 CHANGES IN PRICE DIFFERENTIALS

The Boston Quoted Price
for Graded Territory Wool

FINE

ONE-HALF BLOOD

THREE-EIGHTHS BLOOD

ONE-QUARTER BLOOD

JAN.　　APRIL　　JULY　　OCT.　　JAN.

—— Short F.C. & clothing　　·········· Good F.C. & staple

EACH MONTH DIVIDED INTO 3 PARTS, THE 5TH, 15TH, 25TH.
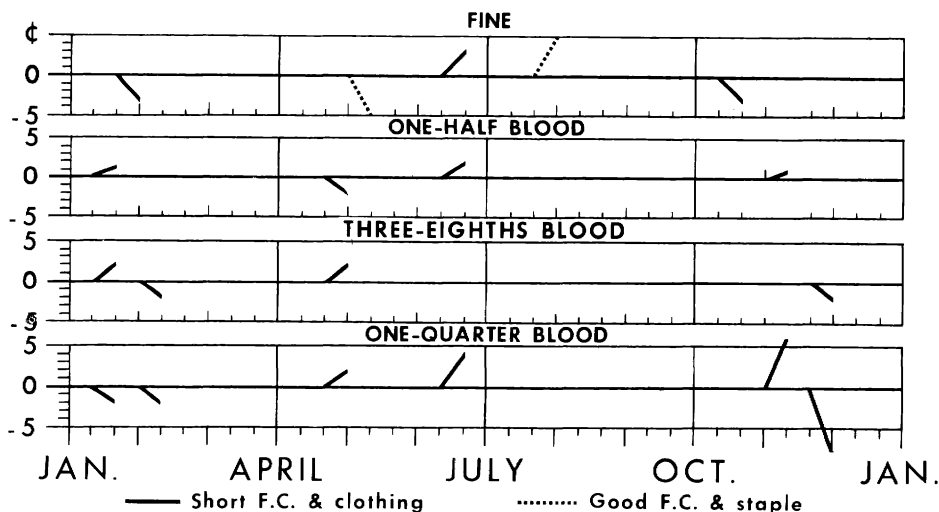
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Figure 9

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Size of Lot

No evidence was found of a statistically significant relationship between variations in the size of lot and variations in the Boston quoted price. The average size of lot marketed in local areas was 89,720 pounds; however, 66 percent of these lots fell within a range above or below the average., plus or minus 20,564 pounds, indicating a great deal of variation in the size of lots sold. These results indicated there was no price advantage associated with marketing larger clips of wool, or, to put it another way, no price disadvantage associated with marketing small clips. However, in some local market areas, large sealed bid sales, consisting of wool of several sized lots but of similar grade, staple length, and yield, were reported as a single lot. These lots sometime totaled as much as a million pounds, so that the average size of lot over all the data is biased and limited in its usefulness or reliability.

Multiple Regression Analysis

A multiple least-squares regression combining the significant variables into a single equation yielded an R value of 0.865. The independent variables are (1) adjusted local prices, (2) average fiber diameter (fineness), and (3) interaction between average fiber diameter and average staple length. Whereas with simple correlation, variation in adjusted local prices explains approximately 46 percent, average fineness, 53 percent, and the interaction term 12 percent of Boston price variations, the 3 variables in combination (R^2) explain about 75 percent of Boston price variations. The relationship of these 3 variations to the estimated Boston quoted price is expressed in the equation:

$$(1.1) \quad Y = 1.55769 - 0.03114 \ X_1 + 0.17455 \ X_2 + 0.00272 \ X_3$$
$$ (.0413) (0.00134) \quad\quad (0.01889) \quad\quad (0.00019)$$

Where, Y = estimated Boston quoted price
X_1 = average fiber diameter (fineness)
X_2 = adjusted local price
X_3 = average fiber diameter X average staple length
(numbers in parenthesis are the standard errors)

For wool sold clean f.o.b. Boston, the regression coefficients in equation (1.1) indicate that, on the average, (a) a change of 1 micron in average fiber diameter is associated with a change of about 3 cents in the Boston quoted price in the opposite direction; (b) a change of 1 cent in local price is associated with a change of 0.175 cent in the Boston quoted price in the same direction; and (c) a change of 1 micron in average fiber diameter times a change of 1 inch in average staple length is associated with a change of 0.272 cent in the Boston price in the same direction. Judging from the regression coefficients in equation (1.1), it may not be obvious as to their relative importance. However, when converted to a standard form, it is more easily seen that unit changes in the average fineness of wool sold result in a greater change in the Boston

quoted price than from unit changes in the other two variables. 5/ Also, the relative change in the Boston quoted prices effected by a unit change of average fineness times average staple length is greater than that for the local price.

The results of this analysis are subject to the same interpretation as those of the simple correlation analysis. The major differences lie in the capacity of the multiple regression to exhibit the net influence each independent variable has on the dependent variable (Boston quoted price). In this respect, the results can be considered to be more complete and thus more useful.

Limitations

The above expressed relationships are derived from the 530 lots of wool analyzed, and are averages over the particular grades, staple lengths, and prices represented. These relationships cannot be inferred to exist beyond these or similar quality wools. Also, because the method of least squares regression minimizes variance at the mean, standard error of estimates is smallest at the means of the variables and increases with departures of variable levels from those means (3). If, for instance, the mean values for the average fiber diameter, average length times average fiber diameter, and adjusted local market price are substituted in equation (1.1) and solved for Boston quoted price (Y), the solution equals the mean value for Y which also approximates the mean value for adjusted local market price. Substituting values different from the means results in estimates with less reliability. The farther from the means these values are, the less reliable will be estimated prices. This holds true for both estimated Boston quoted prices and adjusted local prices. Caution should be exercised, therefore, when attempting to estimate prices of wool with qualities greatly different from the average of those included in this study and for which quality-price differentials have substantially changed.

EVALUATION AND RECOMMENDATIONS

These results indicated two changes were needed in developing market news. First, market news should relate more specifically to particular areas. Second, the Boston report should increase both the number and types of news sources to relate quoted prices more closely to adjusted local prices.

The following recommendations were made to meet these needs:

1. Continue to report to the Boston reporter spot prices from the 6 local markets--Portland, Oreg., Ogden, Utah, Billings, Mont., Denver, Colo., Clovis, N. Mex., and West Fargo, N. Dak.--analyzed in the study. The specially trained livestock reporters can be depended upon as an adequate "source" of local wool market information to supplement the Boston report, and at a reasonable cost.

5/ The standardized form is termed "beta" coefficient (B) and is derived as follows: $B_i = b_i \dfrac{(S_{xi})}{(S_{yi})}$ where, S_x = standard deviation of X_{xi}

S_y = standard deviation of Y_i

b_i = partial regression coefficient

$B_1 = 1.09333$
$B_3 = 0.58821$
$B_2 = 0.26261$

2. In an interim report to C&MS, ERS suggested that a market news office be established immediately in San Angelo, Tex. This would replace the Fort Worth and San Antonio, Tex., offices.

3. A special effort should be made to develop sales information in 3 additional wool market centers--Minneapolis, Minn., Kansas City, Mo., and Stockton, Calif. These cities in addition to the markets referred to in (1) should give an adequate coverage of the wool market in the United States.

4. A separate price category should be developed for wools that are substantially different from the original-bag Territory wools but which are currently reported under that category. This is particularly true of New Mexico wools. The sales reported by the Clovis, N. Mex., reporter for the most part involved wools produced in eastern New Mexico and sold through warehouses in Roswell, Artesia, and Albuquerque. These wools are specialty wools and the market for them is considerably different than for most original-bag Territory wools. A similar situation exists for wools produced in western South Dakota. These wools make up a considerable portion of the sales reported by the West Fargo, N. Dak., office. They are the primary reason that prices reported by the West Fargo office differed significantly from the Boston quotations.

5. Market news is useful only if it is disseminated. Effort should be made to increase the circulation of the Boston Weekly Review (11), especially to producers, local warehouse operators, pool directors, and local producers' organizations.

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